See Your Ch. 1 TEST

- ✓ Each group gets 1 copy of solutions
- ✓ Learn from your mistakes. You could see the same question on future tests.
- ✓ I'll collect all when finished.
- ✓ Feel free to come in to go over the tests.

Some common issues I noticed on the test

Anyone need to leave? (have not taken test)

$(x-4)^2 = 25$

↓

NOT

$x^2 - 16 = 25$

$(m+3)^2$

$m^2 + 9$

$(m+3)(m+3)$

$(6)^2$

36

$(-6)^2$

36

$-(6)^2$

-36

-6^2

-36

$\frac{-4}{10}$ $\frac{4}{-10}$ $-\frac{4}{10}$ ●●› $-\frac{2}{5}$

best

NO "CUTSY Fractions

$-4/10$

what happens if you multiply by 2

$(-4/10)\,2$

$\left(\frac{-4}{10}\right)2$

Solve for n

$(m)^2 = \left(\sqrt{n+3}\right)^2$

Subject ends up on the left

$m^2 = n+3$

$m^2 - 3 = n$

$n = m^2 - 3$

So many made this too hard !!!

$2x + 3x = 6$

$x = 7$

5. Calculate both the x- and y- intercepts for $2x + 3y = 6$ *and show how this can be done using algebra for full credit* (*other methods partial credit*)

Set $x = 0$

$2(0) + 3y = 6$

$3y = 6$

$y = 2$

√√ y-intercept: $(0, 2)$

Set $y = 0$

$2x + 3(0) = 6$

$2x = 6$

$x = 3$

√√ x-intercept(s): $(3, 0)$

Seeing your test:

✓ = 1 mark

✓✓ = 2 marks

✓✓✓ = 3 marks

✓✓✓✓ = 4 marks

etc

/59

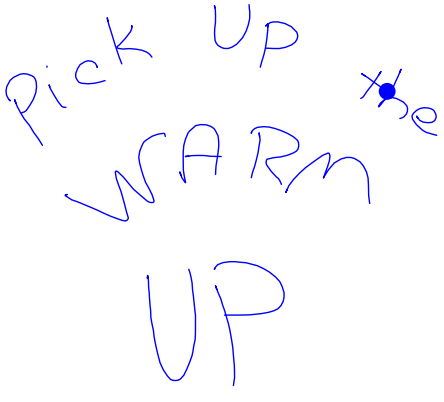
SS = See the Solutions

FT

9
5 FT
()

You did the correct thing on this problem even though you used the incorrect answer from the previous problem.
(So I am not marking this problem wrong)

Homework questions



10 30 50 70 90

① Use the recursive formula to list the first 5 terms

$$\begin{cases} t_1 = 10 \\ t_{n+1} = t_n + 20 \end{cases}$$

6 18 54 ~~162~~

② Use the explicit formula, $t_n = 2(3)^n$ to a) list the first 4 terms b) write its recursive formula.

$t_1 = 2(3)^1 = 6$

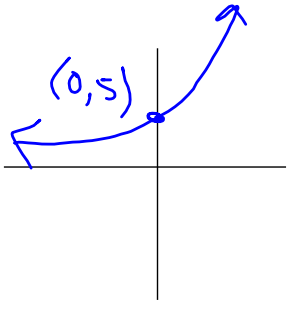
$t_2 = 2(3)^2 = 18$

$$\begin{cases} t_1 = 6 \\ t_{n+1} = 3t_n \end{cases}$$

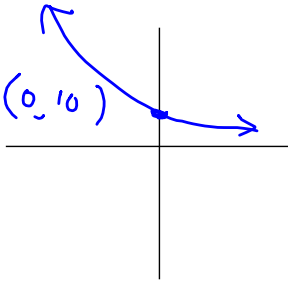
3

Without using any type of a calculator, make a quick **sketch** of each graph below. Label the y-intercept.

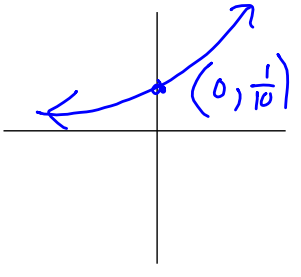
$y = 5(3)^x$



$y = 10\left(\frac{1}{2}\right)^x$



$y = \frac{1}{10}(5)^x$



Questions on HW

ing sheet

Alg 2A

Appendix

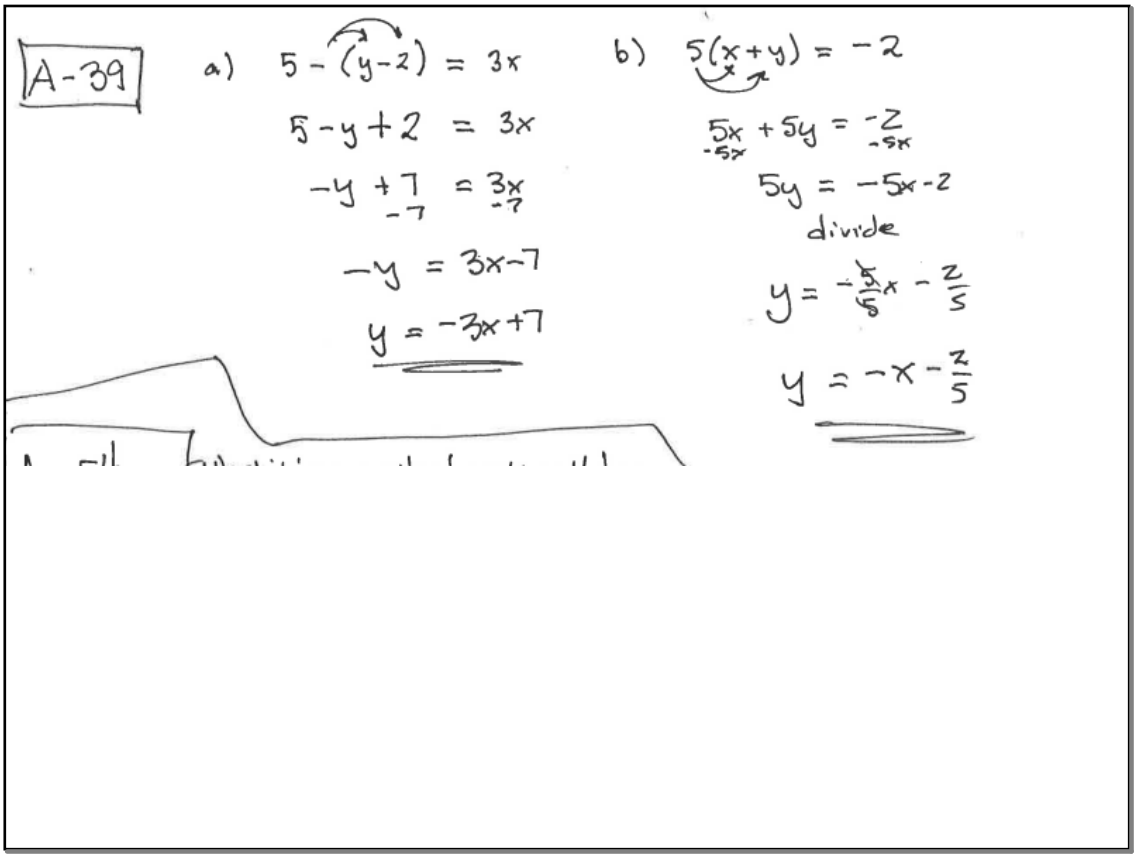
Day 3 Assignment Solutions

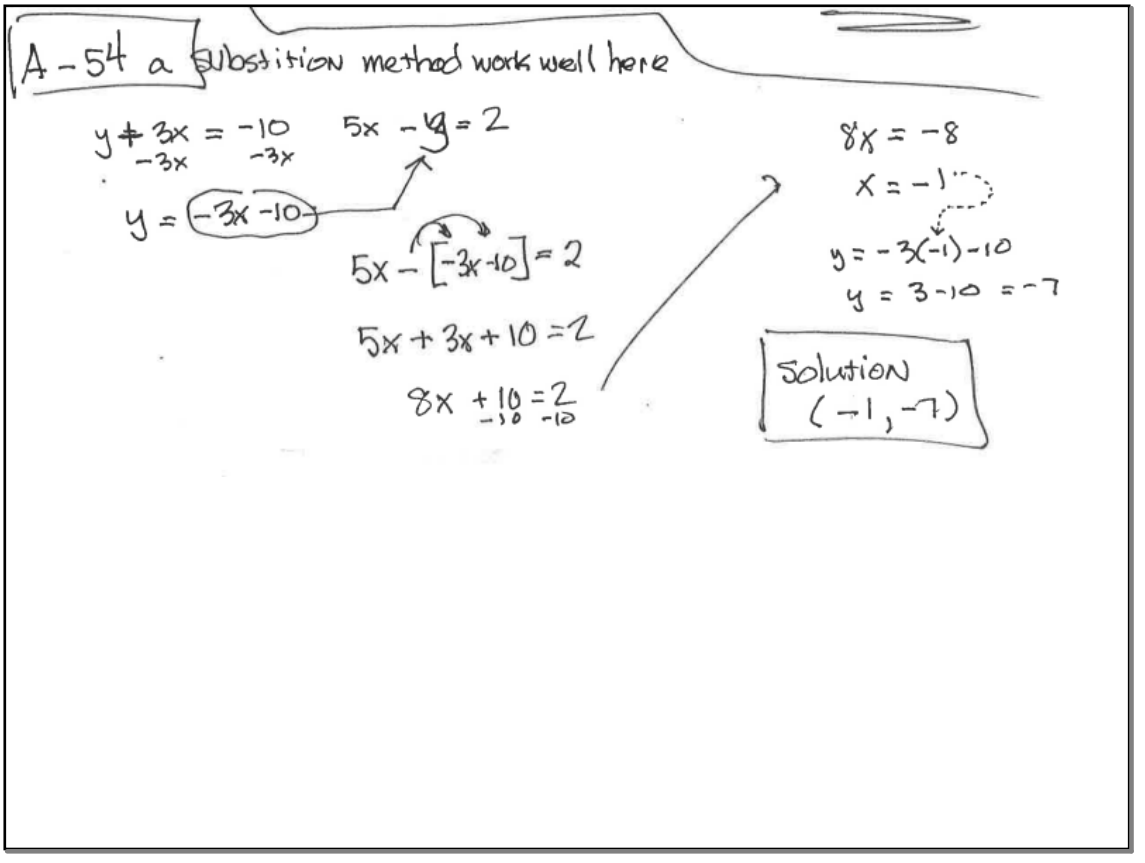
A-14

Jackie and Alexa were working on homework together when Jackie said, *"I got $x = 5$ as the solution, but it looks like you got something different. Which solution is right?"*

$$(x+4)^2 - 2x - 5 = (x-1)^2$$
$$x^2 + 16 - 2x - 5 = x^2 + 1$$
$$16 - 2x - 5 = 1$$
$$11 - 2x = 1$$
$$-2x = -10$$
$$x = 5$$

"I think you made a mistake," said Alexa. Did Jackie make a mistake? Help Jackie figure out whether she made a mistake and, if she did, explain her mistake and show her how to solve the equation correctly. Jackie's work is shown above right. [**Jackie squared the binomials incorrectly. It should be: $x^2 + 8x + 16 - 2x - 5 = x^2 - 2x + 1$, $6x + 11 = -2x + 1$, $8x = -10$, and $x = -1.25$.**]


A-39
a) 5 - (y-2) = 3x
5 - y + 2 = 3x
-y + 7 = 3x
-7 -7
-y = 3x - 7
y = -3x + 7
b) 5(x+y) = -2
5x + 5y = -2
-5x -5x
5y = -5x - 2
divide
y = -5/5 x - 2/5
y = -x - 2/5


A-54 a substition method work well here
y + 3x = -10
-3x -3x
y = -3x - 10
5x - y = 2
5x - [-3x - 10] = 2
5x + 3x + 10 = 2
8x + 10 = 2
-10 -10
8x = -8
x = -1
y = -3(-1) - 10
y = 3 - 10 = -7
solution
(-1, -7)

A-54 b

$6x = 7 - 2y$

$4x + y = 4$

$y = -4x + 4$

$6x = 7 - 2y$

$6x = 7 - 2[4x + 4]$

$6x = 7 + 8x - 8$

$6x = 8x - 1$

$-8x \quad -8x$

$-2x = -1$

$x = \frac{1}{2}$

$y = -4(\frac{1}{2}) + 4$

$y = -2 + 4 = 2$

Solution $(\frac{1}{2}, 2)$

A-89 Recursive Sequences

(a) $t_1 = -3$ ← sequence starts at -3

$t_{n+1} = -2 \cdot t_n$

$-3, 6, -12, 24, -48$

b) $t_1 = 8$

$t_{n+1} = t_n - 5$

$8, 3, -2, -7, -12$

c) $t_1 = 2$

$t_{n+1} = (t_n)^{-1}$

$= \frac{1}{t_n}$

$2, \frac{1}{2}, 2, \frac{1}{2}, 2$

A-102

(a) $(2m^3)(4m^2) = 8m^5$

(b) $\frac{6y^5}{3y^2} = 2y^3$

(c) $\frac{-4y^2}{6y^7} = -\frac{2}{3y^5}$

d) $(-2x^2)^3$

$= (-2)^3 (x^2)^3$

$-8x^6$

A-105

a) $(x+2)(x+3) = x^2 - 10$

$x^2 + 3x + 2x + 6 = x^2 - 10$

$5x + 6 = -10$

$-6 \quad -6$

$5x = -16$

$x = -\frac{16}{5}$

b) multiply all terms by 6

$\frac{1}{2}x + \frac{1}{3}x - 7 = \frac{5}{6}x$

$3x + 2x - 42 = 5x$

$5x \quad -42 = 5x$

$-5x \quad\quad -5x$

$-42 = 0$

Never true

so there are NO solutions

Solutions

c) $|2x-1| = 9$

$2x-1 = 9$ (+1 +1) $\quad 2x-1 = -9$ (+1 +1)

$2x = 10 \quad 2x = -8$

$x = 5 \quad x = -4$

two solutions

d) $\frac{x+1}{3} = \frac{x}{2}$ cross multiply

$2(x+1) = 3x$

$2x+2 = 3x$ (-2x -2x)

$2 = x$

$x = 2$!!!

NOT $2 = x$

A-112 $t_n = 5 \cdot 2^n$

$5 \cdot 2^n = 200$

divide by 5

$2^n = 40$

graph on GDC to find intersection

$n \approx 5.321$

so 200 is NOT one of the terms

Appendix B

B-11

a) $(3x^2y z^4)^2 = 9x^4y^2z^8$

b) $\left(\frac{r^8 s}{s^3 t}\right)^3 = \left(\frac{r}{s^2 t}\right)^3 = \frac{r^3}{s^6 \cdot t^3}$

c) $(3m+7)(2m-1) = 6m^2 - 3m + 14m - 7 = 6m^2 + 11m - 7$

d) $(x-3)^2 = (x-3)(x-3) = x^2 - 3x - 3x + 9 = x^2 - 6x + 9$

B-46

DVD loses 60% every year

start at $80

$100\% - 60\% = 40\%$

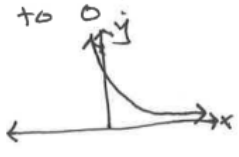
a) Multiplier 0.4

b) $y = 80(0.4)^1 = \$32$ after 1 year

$y = 80(0.4)^4 = \$2.05$ after 4 yrs

c) $V(t) = 80(0.4)^t$

d) In theary it will never go to 0



Today's 1st Aim

TABES or Graphs → Write exponential functions

(Need the classwork)

① **Table to Equation**

$y = ab^x$

x	y
0	3.2
1	8
2	20
3	50
4	

$y = 1.28(2.5)^x$

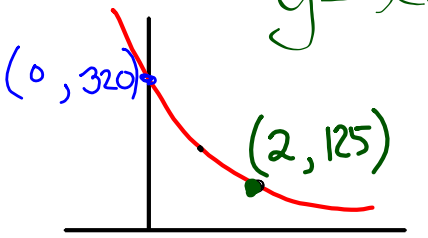
$y = 3.2(2.5)^{x-1}$

Very similar to their cousin, the Sequences

② **Graphs to Equations**

$y = ab^x$

$y = 320(.625)^x$



0	320 · b
1	· b
2	125

$320 \cdot b \cdot b = 125$

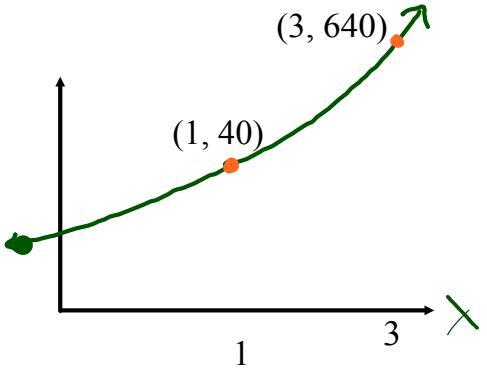
$320b^2 = 125$

$b^2 = \frac{125}{320}$

$b = \pm\sqrt{\frac{125}{320}}$

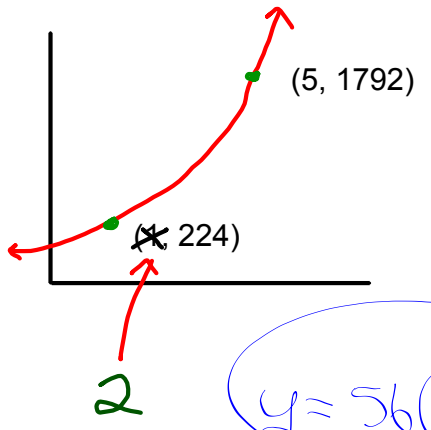
$b = .625$

③ In this question you will expand your skills. Think of it as a puzzle in which you are using clues to create an exponential equation.



$y = 10(4)^x$

④



$y = 56(2)^x$

56, 112 (①), 224 (②), —, —, 1792 (⑤)

$224 \cdot b \cdot b \cdot b = 1792$

$224\,b^3 = 1792$

$b^3 = \frac{1792}{224}$

$\sqrt[3]{\quad} \qquad \sqrt[3]{\quad}$

$b = \sqrt[3]{\frac{1792}{224}}$

$= 2$

150 (yesterday) 162 (today)

①

multiplier $\frac{162}{150} = 1.08$

a) 8% rate of increase

multiplier 1.08

②

$y = 150(1.08)^t$

③ $y = 162(1.08)^t$

$y = 162(1.08)^{-14}$

$\frac{162}{1.08^{14}}$

$55.15

Consider taping into your notes later

BB

TODAY'S 2nd AIM

Create exponential functions in percent growth or decay situations

Handout

I. **Tickets for a concert have been in incredibly high demand, and as the date for the concert draws closer, the price of tickets increases exponentially.**

The cost of a pair of concert tickets was $150 yesterday, and today it is $162.

As you complete parts (a) through (c) below, assume that each day's percent increase from the day before is the same.

1. What is the daily percent rate of increase? What is the multiplier?

$\frac{162}{150} = 1.08 \rightarrow 108\% \rightarrow 100\% + 8\%$ increase

2. Write a function that represents the price of tickets after t days ?

3. What was the cost of a pair of tickets two weeks ago?

$150(1.08)^{(-14)}$

IV Suppose $y = 200(1.02)^x$ represents a

(a) population of ants growing by a constant percentage. What percent is the population growing by?

102%

2% growth

(b) What is the percent growth if the equation was $y = 50(1.26)^x$?

126% so 26% growth

c) What if it was $y = 10000(.7)^x$?

$100\% - 30\% = 70\%$

30% decay

LCQ

Assignment

A...121b, 123, 125 ← end of Appendix A

B...35, 48, 61, 64 ← Appendix B

Table to Equation

$y = ab^x$

x	y
1	
2	8
3	20
4	50

Very similar to their cousin, the Sequences

Graphs to Equations

$y = ab^x$